

CLAIMS

What is claimed is:

- 1 1. An access-controlling mechanism comprising:
2 one or more apparatus main bodies;
3 one or more access-controlling bodies removably deployed at one or more openings of
4 at least one of the apparatus main body or bodies;
5 one or more engaging means causing at least one of the access-controlling body or
6 bodies deployed at at least one of the opening or openings of at least one of the apparatus
7 main body or bodies to engage with at least one of the apparatus main body or bodies;
8 and
9 one or more disengaging means provided at at least one of the access-controlling body
10 or bodies and disengaging engagement produced by at least one of the engaging means;
11 at least one of the disengaging means being such that disengagement of engagement
12 produced by at least one of the engaging means occurs due to the fact that actuation of at
13 least one of the disengaging means causes at least one of the access-controlling body or
14 bodies to move away from at least one of the engaging means and in one or more first
15 directions tending to cause disengagement of engagement produced by at least one of the
16 engaging means or causes at least one of the engaging means to move away from at least
17 one of the access-controlling body or bodies and in one or more second directions
18 tending to cause disengagement of engagement produced by at least one of the engaging
19 means.
1 2. An access-controlling mechanism according to claim 1 wherein:
2 at least one of the apparatus main body or bodies is at least one image forming
3 apparatus main body;
4 at least one of the access-controlling body or bodies being removably deployed at at
5 least one of the opening or openings of at least one of the image forming apparatus main
6 body or bodies.
1 3. An access-controlling mechanism according to claim 1 wherein:
2 at least one of the access-controlling body or bodies is supported by one or more

3 guide members so as to permit movement with respect to at least one of the apparatus
4 main body or bodies.

1 4. An access-controlling mechanism according to claim 1 wherein:

2 at least one of the first direction or directions tending to cause disengagement of
3 engagement produced by at least one of the engaging means is at least one approximately
4 vertically upward direction or at least one approximately vertically downward
5 direction; and

6 at least one of the second direction or directions tending to cause disengagement of
7 engagement produced by at least one of the engaging means is at least one approximately
8 vertically upward direction or at least one approximately vertically downward direction.

1 5. An access-controlling mechanism according to claim 1 wherein:

2 at least one of the disengaging means is at least one disengaging lever comprising one
3 or more actuation regions, one or more pivot regions, and one or more action regions;
4 and

5 disengagement of engagement produced by at least one of the engaging means occurs
6 due to the fact that at least one of the actuation region or regions of at least one of the
7 disengaging lever or levers receives one or more actuation forces, at least one of the
8 action region or regions of at least one of the disengaging lever or levers is displaced, and
9 at least one of the action region or regions of at least one of the disengaging lever or
10 levers causes at least one of the access-controlling body or bodies to move away from at
11 least one of the engaging means and in one or more first directions tending to cause
12 disengagement of engagement produced by at least one of the engaging means or causes
13 at least one of the engaging means to move away from at least one of the access-
14 controlling body or bodies and in one or more second directions tending to cause
15 disengagement of engagement produced by at least one of the engaging means.

1 6. An access-controlling mechanism according to claim 5 wherein:

2 at least one of the action region or regions of at least one of the disengaging lever or
3 levers causes at least one of the access-controlling body or bodies to move away from at
4 least one of the engaging means and in one or more first directions tending to cause
5 disengagement of engagement produced by at least one of the engaging means, or causes
6 at least one of the engaging means to move away from at least one of the access-

controlling body or bodies and in one or more second directions tending to cause disengagement of engagement produced by at least one of the engaging means, in at least one vicinity of at least one imaginary vertical line depending from at least one center of gravity of at least one of the access-controlling body or bodies.

7. An access-controlling mechanism according to claim 5 wherein:

at least one of the action region or regions of at least one of the disengaging lever or levers causes at least one of the access-controlling body or bodies to move away from at least one of the engaging means and in one or more first directions tending to cause disengagement of engagement produced by at least one of the engaging means, or causes at least one of the engaging means to move away from at least one of the access-controlling body or bodies and in one or more second directions tending to cause disengagement of engagement produced by at least one of the engaging means, in at least one vicinity of at least one location where at least one of the access-controlling body or bodies is engaged by at least one of the engaging means.

8. An access-controlling mechanism according to claim 5 further comprising:

one or more disengaging-lever restoring-force-imparting means imparting at least one of the actuation region or regions of at least one of the disengaging lever or levers with at least one restoring force opposite in direction to at least one actuation direction.

9. An access-controlling mechanism according to claim 5 wherein:

at least one location where engagement by at least one of the engaging means occurs and at least one location of at least one of the action region or regions of at least one of the disengaging lever or levers differ in at least one direction perpendicular to at least one direction of deployment and/or removal of at least one of the access-controlling body or bodies.

10. An access-controlling mechanism according to claim 5 wherein:

at least one of the action region or regions of at least one of the disengaging lever or levers is in at least one vicinity of at least one pivot region of at least one of the disengaging lever or levers.

11. An access-controlling mechanism according to claim 5 wherein:

at least one of the action region or regions of at least one of the disengaging lever or

levers is in at least one location distant from at least one pivot region of at least one of the disengaging lever or levers.

12. An access-controlling mechanism according to claim 5 wherein:

at least one of the action region or regions of at least one of the disengaging lever or levers is provided with one or more rotatable rollers.

13. An access-controlling mechanism according to claim 12 wherein:

at least one of the roller or rollers is at least partially cylindrical and/or spherical in shape.

14. An access-controlling mechanism according to claim 12 wherein:

at least one diameter of at least one of the roller or rollers is approximately equal to or is slightly greater than at least one height of at least one of the engaging means.

15. An access-controlling mechanism according to claim 1 wherein:

at least one of the disengaging means is such that at least one of the access-controlling body or bodies is displaced away from at least one of the apparatus main body or bodies simultaneously with respect to disengagement of engagement produced by at least one of the engaging means occurring due to the fact that actuation of at least one of the disengaging means causes at least one of the access-controlling body or bodies to move away from at least one of the engaging means and in one or more first directions tending to cause disengagement of engagement produced by at least one of the engaging means.

16. An access-controlling mechanism according to claim 1 further comprising:

one or more access-controlling-body restoring-force-imparting means imparting at least one of the access-controlling body or bodies with at least one restoring force in at least one deployment direction or in at least one removal direction.

17. An access-controlling mechanism according to claim 1 wherein at least one of the engaging means has:

at least one stepped surface for stopping at least one of the access-controlling body or bodies in at least one direction of deployment and/or removal of at least one of the access-controlling body or bodies; and

at least one sloped surface for surmounting at least one of the stepped surface or surfaces.

1 18. An access-controlling mechanism comprising:
2 one or more apparatus main bodies;
3 one or more access-controlling bodies removably deployed at one or more openings of
4 at least one of the apparatus main body or bodies;
5 one or more engaging means causing at least one of the access-controlling body or
6 bodies deployed at at least one of the opening or openings of at least one of the apparatus
7 main body or bodies to engage with at least one of the apparatus main body or bodies;
8 and
9 one or more disengaging levers provided at at least one of the access-controlling body
10 or bodies and disengaging engagement produced by at least one of the engaging means;
11 wherein at least one of the disengaging lever or levers comprises one or more
12 actuation regions, one or more pivot regions, and one or more action regions and is such
13 that disengagement of engagement produced by at least one of the engaging means
14 occurs due to the fact that at least one of the actuation region or regions of at least one of
15 the disengaging lever or levers receives one or more actuation forces, at least one of the
16 action region or regions of at least one of the disengaging lever or levers is displaced, and
17 at least one of the action region or regions of at least one of the disengaging lever or
18 levers causes at least one of the access-controlling body or bodies to move away from at
19 least one of the engaging means and in one or more first directions tending to cause
20 disengagement of engagement produced by at least one of the engaging means or causes
21 at least one of the engaging means to move away from at least one of the access-
22 controlling body or bodies and in one or more second directions tending to cause
23 disengagement of engagement produced by at least one of the engaging means.

1 19. An image forming apparatus comprising:
2 one or more image forming apparatus main bodies;
3 one or more access-controlling bodies removably deployed at one or more openings of
4 at least one of the image forming apparatus main body or bodies;
5 one or more engaging means causing at least one of the access-controlling body or
6 bodies deployed at at least one of the opening or openings of at least one of the image
7 forming apparatus main body or bodies to engage with at least one of the image forming
8 apparatus main body or bodies; and

9 one or more disengaging means provided at at least one of the access-controlling body
10 or bodies and disengaging engagement produced by at least one of the engaging means;
11 at least one of the disengaging means being such that disengagement of engagement
12 produced by at least one of the engaging means occurs due to the fact that actuation of at
13 least one of the disengaging means causes at least one of the access-controlling body or
14 bodies to move away from at least one of the engaging means and in one or more first
15 directions tending to cause disengagement of engagement produced by at least one of the
16 engaging means or causes at least one of the engaging means to move away from at least
17 one of the access-controlling body or bodies and in one or more second directions
18 tending to cause disengagement of engagement produced by at least one of the engaging
19 means.

1 20. An image forming apparatus comprising:

2 one or more image forming apparatus main bodies;
3 one or more access-controlling bodies removably deployed at one or more openings of
4 at least one of the image forming apparatus main body or bodies;
5 one or more engaging means causing at least one of the access-controlling body or
6 bodies deployed at at least one of the opening or openings of at least one of the image
7 forming apparatus main body or bodies to engage with at least one of the image forming
8 apparatus main body or bodies; and
9 one or more disengaging levers provided at at least one of the access-controlling body
10 or bodies and disengaging engagement produced by at least one of the engaging means;
11 wherein at least one of the disengaging lever or levers comprises one or more
12 actuation regions, one or more pivot regions, and one or more action regions and is such
13 that disengagement of engagement produced by at least one of the engaging means
14 occurs due to the fact that at least one of the actuation region or regions of at least one of
15 the disengaging lever or levers receives one or more actuation forces, at least one of the
16 action region or regions of at least one of the disengaging lever or levers is displaced, and
17 at least one of the action region or regions of at least one of the disengaging lever or
18 levers causes at least one of the access-controlling body or bodies to move away from at
19 least one of the engaging means and in one or more first directions tending to cause
20 disengagement of engagement produced by at least one of the engaging means or causes

21 at least one of the engaging means to move away from at least one of the access-
22 controlling body or bodies and in one or more second directions tending to cause
23 disengagement of engagement produced by at least one of the engaging means.